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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/920,633	08/03/2001	Osamu Nagano	02887-0208	6947

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EXAMINER

NGUYEN, LAM S

ART UNIT PAPER NUMBER

2853

DATE MAILED: 12/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/920,633

Applicant(s)

NAGANO ET AL.

Examiner

LAM S NGUYEN

Art Unit

2853

NW

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25 is/are allowed.
- 6) ☒ Claim(s) 1-4 and 21-24 is/are rejected.
- 7) ☒ Claim(s) 5-20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1-4, 21-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Miyoshi et al. (US 6525328).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

**Referring to claims 1, 21, 23-24:**

Miyoshi et al. disclose a charged particle beam exposure system comprising: a charged particle beam emitting device (FIG. 2, element 71) which generates charged particle beams with which a substrate is irradiated (FIG. 2, element 21), said charged particle beam emitting device generating the charged particle beams at an accelerating voltage which is lower than that at which an influence of a proximity effect occurs (Abstract), the proximity effect being a

Art Unit: 2853

phenomenon in which a secondary charged particle and/or a reflected charged particle which is/are produced from the surface of the substrate irradiated with the charged particle beams influence(s) an exposure extent of a pattern which is adjacent to a pattern to be written (column 1, line 25-48);

an illumination optical system which adjusts a beam diameter of the charged particle beams so that density of the charged particle beams is uniform (FIG. 2, element 72 or FIG. 4, element 53);

a character aperture in which an aperture hole is formed in a shape corresponding to a desired pattern to be written (FIG. 2, element 73 or FIG. 4, element 5);

a first deflector which deflects the charged particle beams by an electrostatic field that the charged particle beams have a desired sectional shape and travel towards a desired aperture hole and which returns the charged particle beams passing through said aperture hole to an optical axis thereof (FIG. 4, element 4);

a reducing projecting optical system which forms a multi-pole lens field so that the charged particle beams passing through said character aperture substantially reduce at the same demagnification both in X and Y directions when the optical axis extends in Z directions (FIG. 2, element 74) and form an image on the substrate (FIG. 2, element 21) without forming any crossover between said character aperture and the substrate (Abstract); and

a second deflector which deflects the charged particle beams passing through said character aperture by means of an electrostatic field to scan the substrate with the charged particle beams (FIG. 4, element 6).

**Referring to claims 2, 22:** wherein said reducing projecting optical system includes multi-pole lenses the number of which is  $N_1$ ,  $N_1$  being a natural number of 3 or more (FIG. 5, element 8 (Qb1-Qb4);  $N_1 = 4$ ).

**Referring to claim 3:** wherein said second deflector deflects the charged particle beams in the X directions and the charged particle beams in said Y directions independently to each other (FIG. 4, element 6).

**Referring to claim 4:** wherein said  $N_1$  is 4 (FIG. 5, element 8 (Qb1-Qb4);  $N_1 = 4$ ).

***Allowable Subject Matter***

2. Claim 25 is allowed and claims 5-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**Referring to claims 5 and 25:** The most pertinent art fails to disclose wherein said four multi-pole lenses are controlled to form first through fourth electrostatic fields so that said first through fourth electrostatic fields sequentially form a divergent electrostatic field, a divergent electrostatic field, a convergent electrostatic field, and a divergent electrostatic field, in one direction of the X and Y directions and so as to sequentially form a convergent electrostatic field, a convergent electrostatic field, a divergent electrostatic field and a convergent electrostatic field in the other direction of the X and Y directions. Therefore, the claimed invention is not disclosed by the cited prior art.

**Referring to claim 13:** The most pertinent art fails to disclose wherein the inside diameter of said first multi-pole lens and said second multi-pole lens is a first inside diameter and the inside diameter of said third multi-pole lens and said fourth multi-pole lens is a second inside

diameter which is greater than said first inside diameter. Therefore, the claimed invention is not disclosed by the cited prior art.

Claims 6-12, 14-20 are allowable because they depend directly/indirectly on claim 5 or 13.

***Response to Arguments***

Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAM S NGUYEN whose telephone number is (703)305-3342. The examiner can normally be reached on 7:00AM - 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, STEPHEN D. MEIER can be reached on (703)308-4896. The fax phone numbers for the organization where this application or proceeding is assigned are (703)305-3431 for regular communications and (703)305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

LN

December 5, 2003

  
HAI PHAM  
PRIMARY EXAMINER